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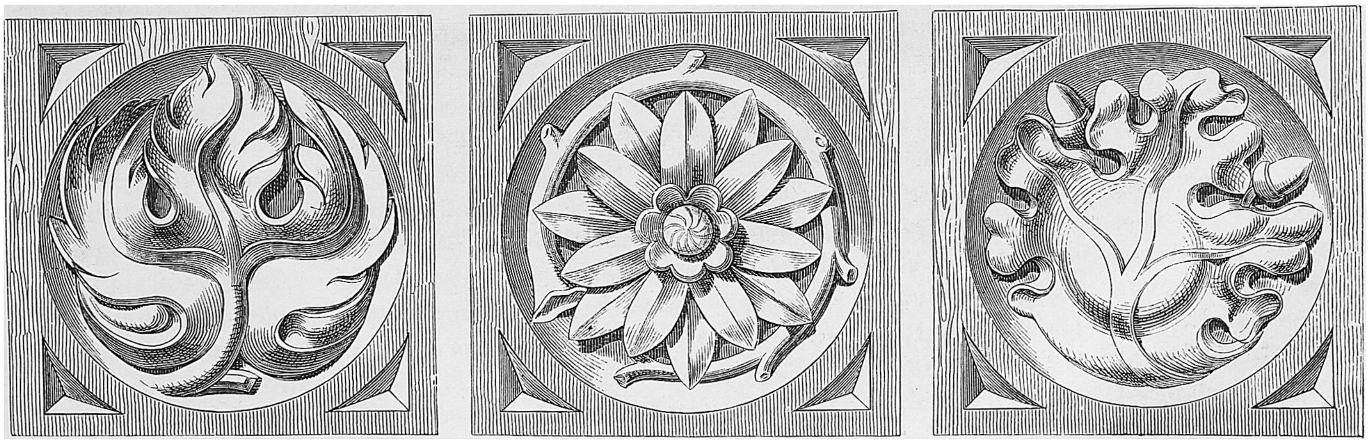
of decoration a unity and truly fabulous enchantment, which can be compared with nothing else, and which leaves on the mind of the spectator an imperishable impression. Far from wishing to imitate such works, we do but admire them as wonderful pieces of decorative art. The works of the Sculptor, such as statues, masks, animal figures, are with great taste and beauty introduced into these structures, while on any smooth surfaces of the wood work are applied inlaid woods of different colors, and thus we see not unfrequently a general effect produced, as in the celebrated choir stalls at Ulm, by Syrlin, (1469—1474) which together with an inexhaustible richness of foliage, tracery and delicate intarsia, displays an abundance of sculpture, all of which is of the best arrangement, and both as to ornament and statuary of unsurpassable beauty.

The Gothic decorative art appears almost always harmonious and of great importance in secular buildings, especially in wood buildings, and on small objects, such as covers, doors, cupboards etc. Here the tabernacle character is always in the back ground, the simple, horizontal line so well suited to its purpose comes into general use, the foliage, though now in flat treatment, appears always in the most gracefully flowing lines and involutions, chests are generally capped with embattled parapets in wood; very beautiful and applicable to the wants of the present day are those slightly vaulted wooden ceilings with their beams richly chamfered, or carved and ornamented with scrolls and flowers, or even with armorial bearings, sometimes in the natural color of the wood, but more usually painted and gilt.

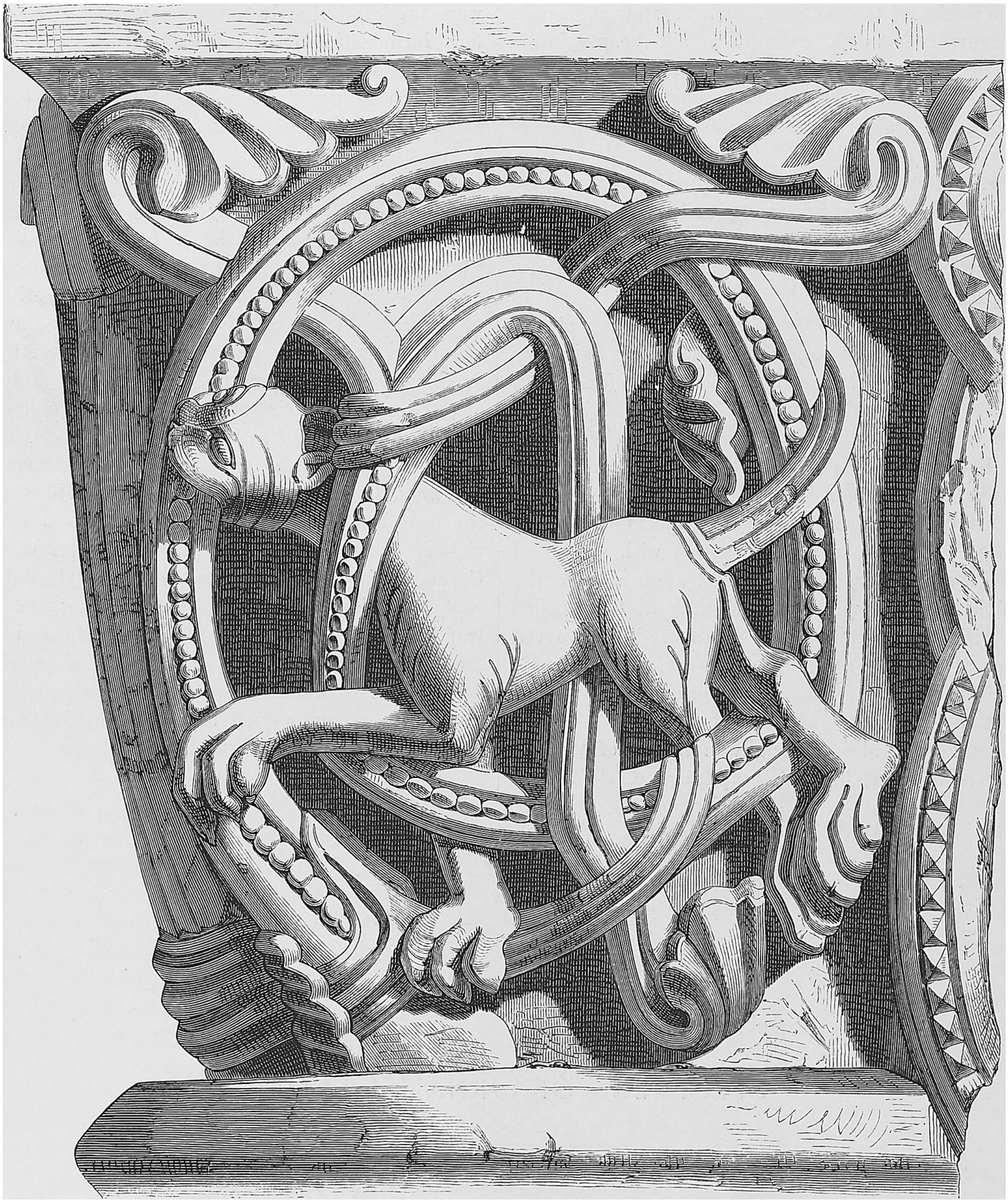
In metal works also, especially in articles of wrought iron, locks and hinges, brackets, capitals, etc., the foliage work plays an important part, and here again displays a new and wonderfully vigorous vitality, which passed into the Renaissance, and even continued in a healthy and sound condition to the latest *Rococo* times.

The most charming works of Gothic ornamental art were produced shortly before, or simultaneously with the first introduction of the Italian Renaissance into other countries, which gave a new pulsation to the style which had been in use for many centuries, and had indeed, especially in the ornamental part, at its first appearance, a certain relationship to the Gothic; its first pioneers, such as Ghiberti and Alberti, were decided off-shoots from the Gothic, and they it was who applied the natural wild foliage with the greatest judgement and in the highest beauty to their splendid door-frames in brass or marble, and far from that exclusive repetition of the old acanthus leaf, which predominated in the whole of the late Renaissance period, we see especially in the smaller towns of Tuscany, for example in Siena and Pienza, capitals, frieses, furniture, etc., enlivened with the most varied and beautiful forms of leaves, introduced in the most graceful manner into the statues of men and animals borrowed from the antique. More late indeed the acanthus became inevitable, at first in spirited varieties, but afterwards more severe and uniform. In Germany, for example, where the new style did not take root till a hundred years after its rise, the acanthus leaf obtained universal sway, and unfortunately supplanted the various, and rich Gothic forms of leaves, so well suited both to works of wood and stone, and which the art of the present period has more than ever succeeded in regenerating, enriching and ennobling.

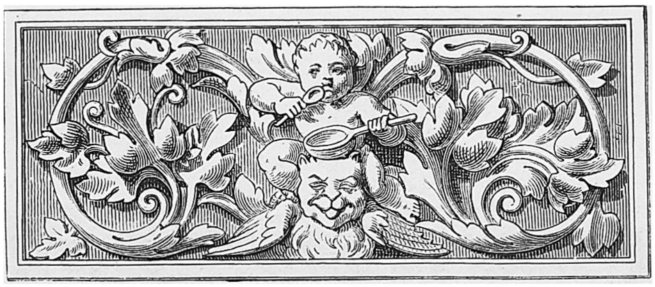
SPECIMENS OF ORNAMENTATION.



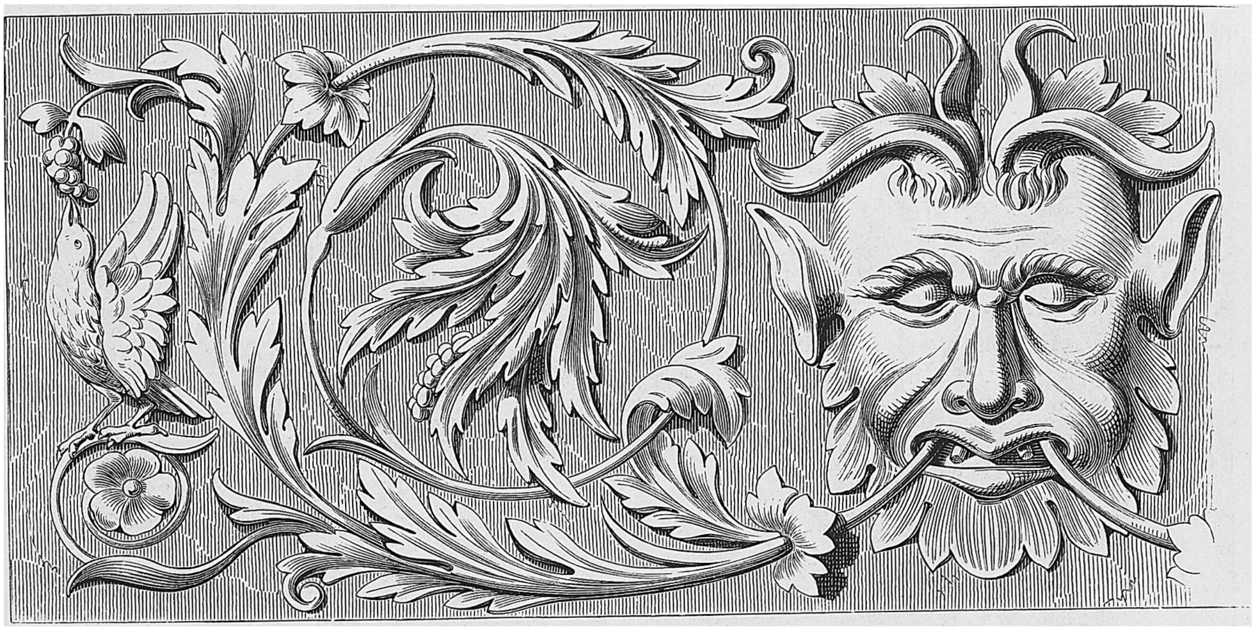
Nos. 1—3. German. — Carvings from Stalls of Ulm Minster.



No. 4. French. — Romanesque Capital from Prefecture at Angers.



No. 5.



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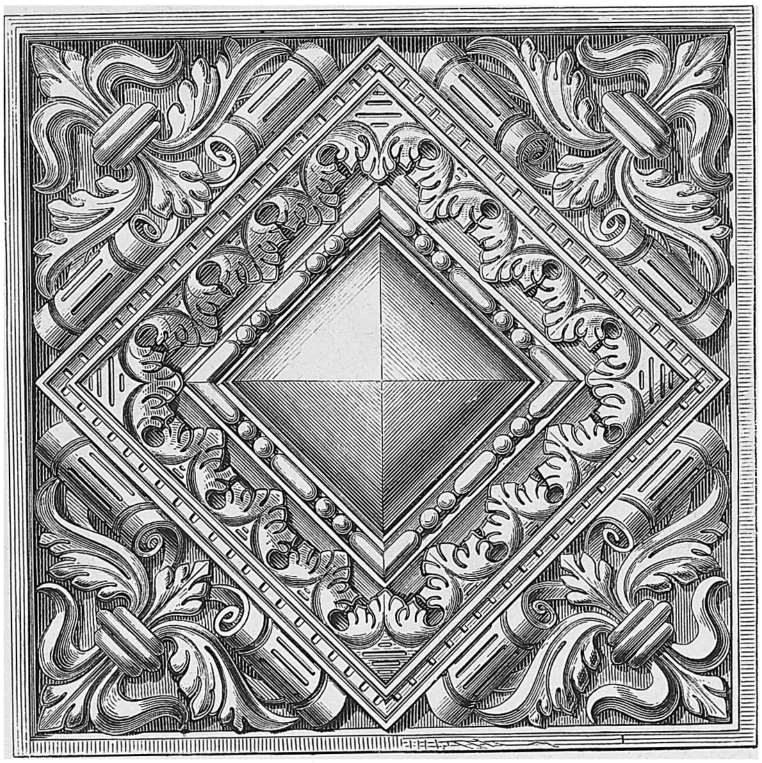
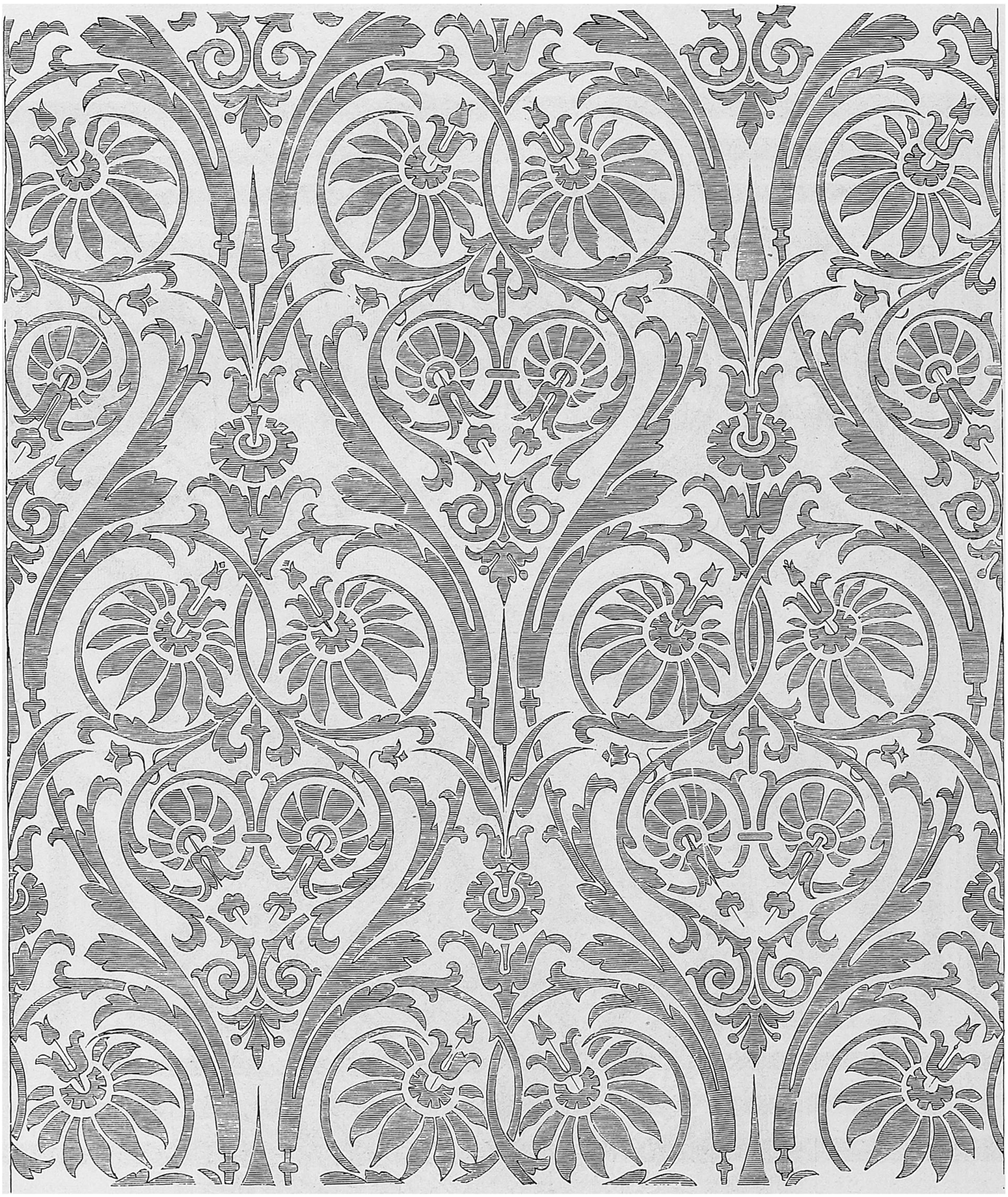
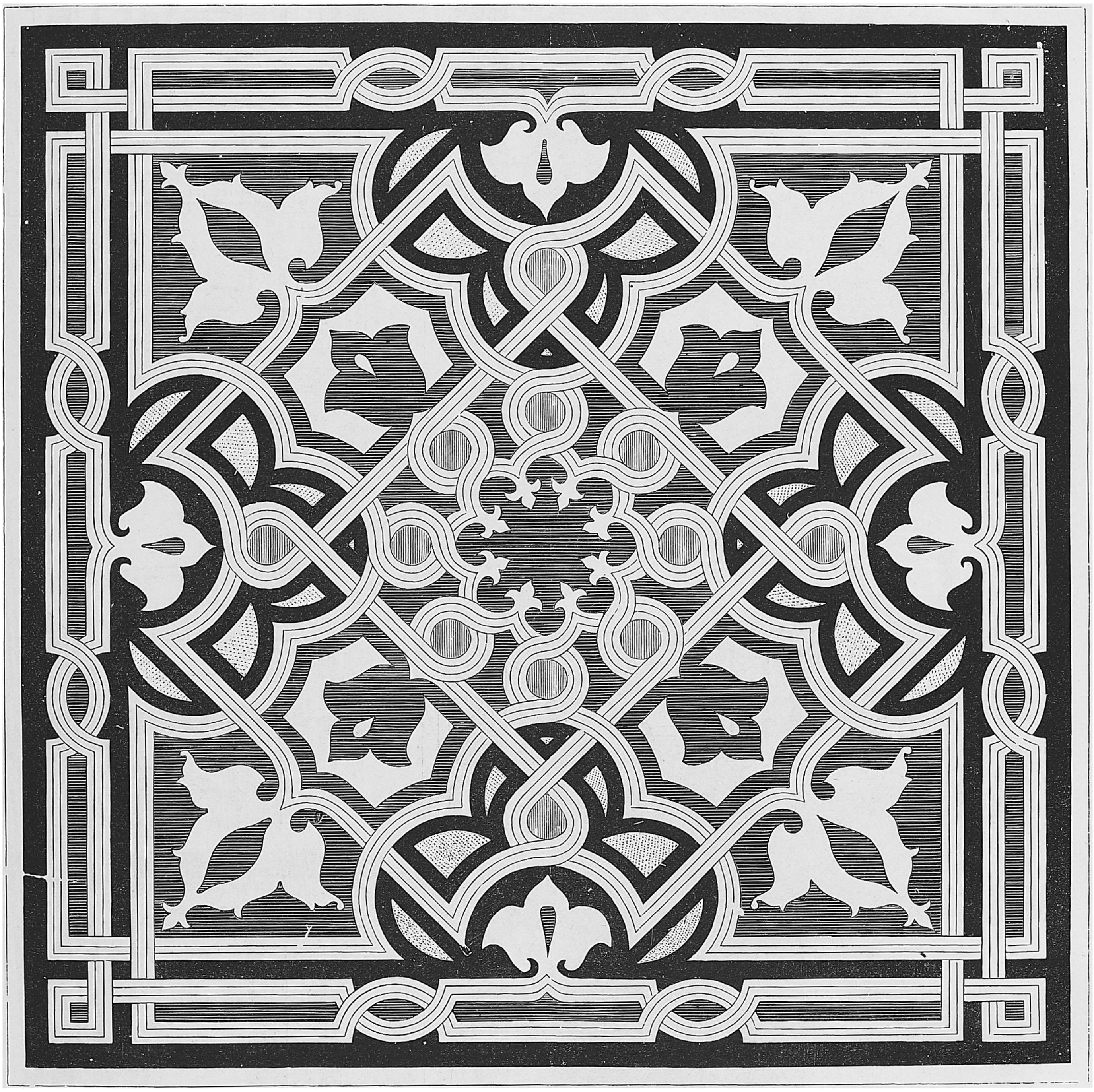


No. 7.

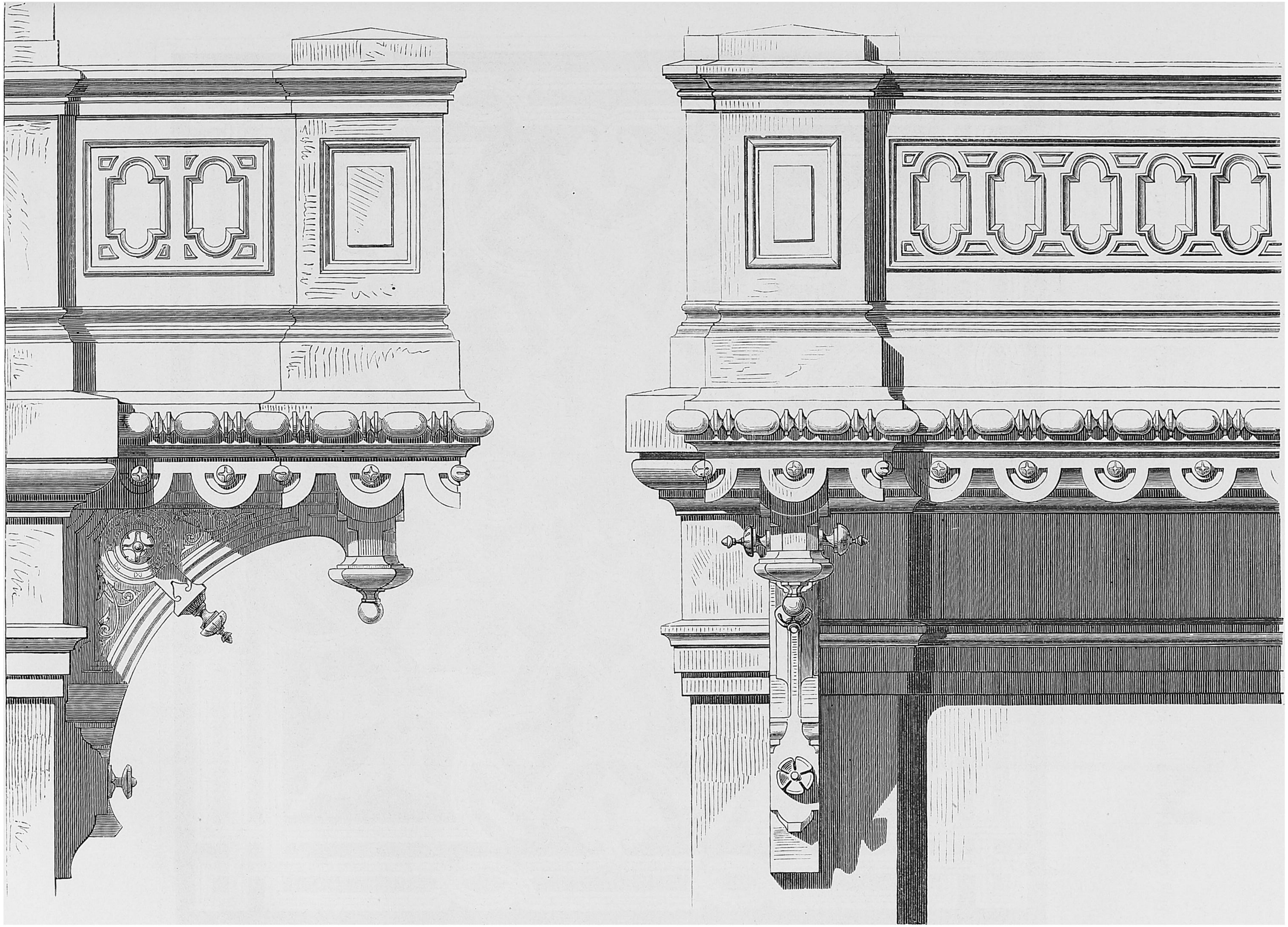
No. 5. German. — Carved Ornament in Wood rom the Collections of Prince Hohenzollern-Sigmaringen.
No. 6. Italian. — Ornament from Stalls of S. Pietro in Perugia.
No. 7. German. — Glazed Tile from a Stove in the Collections of the Germanic Museum Nuremberg. 1/2 real size.



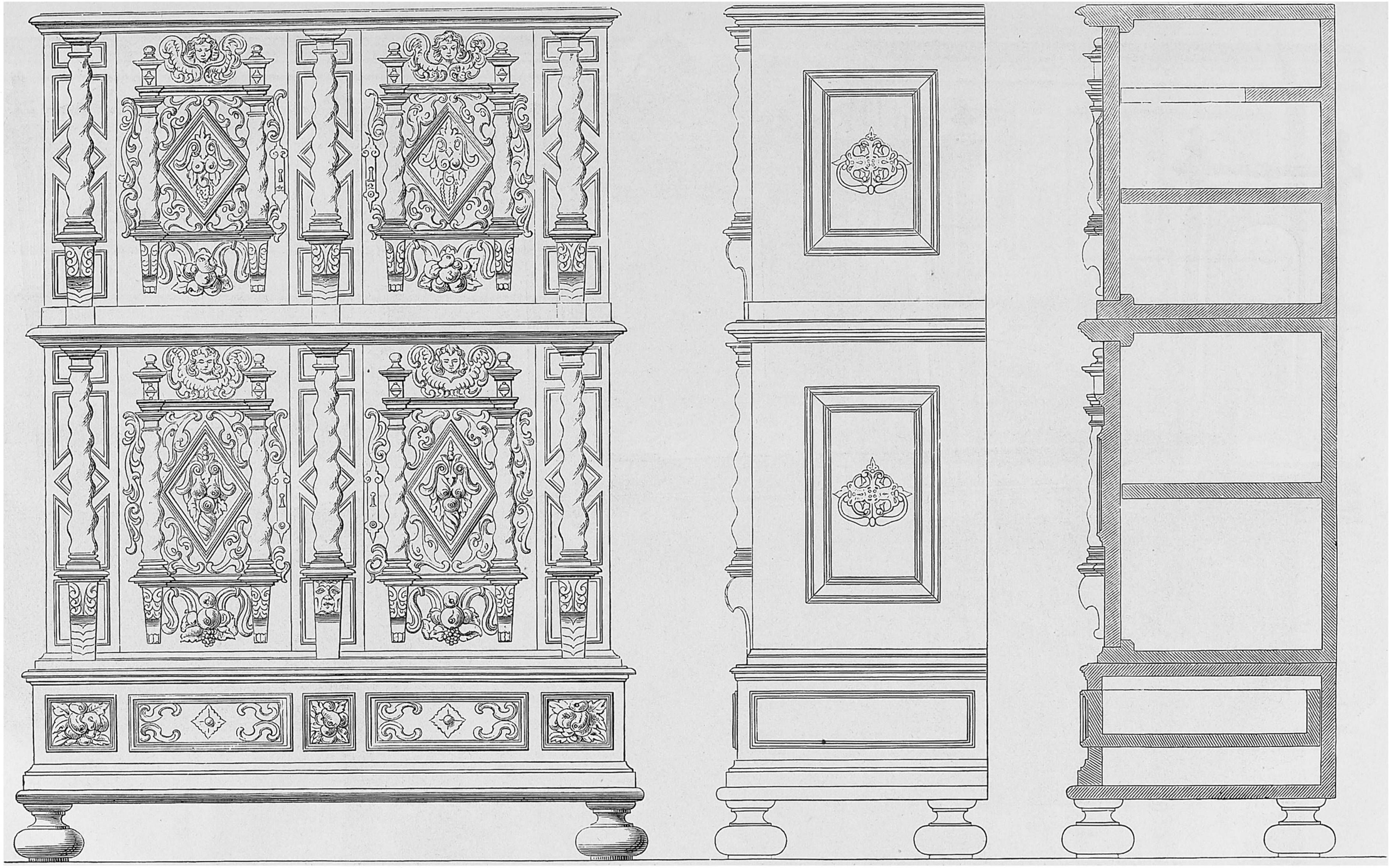
No. 8. — Pattern for Damask or Paper Hangings, designed by Mr. Ph. Niederhöfer, Munich.



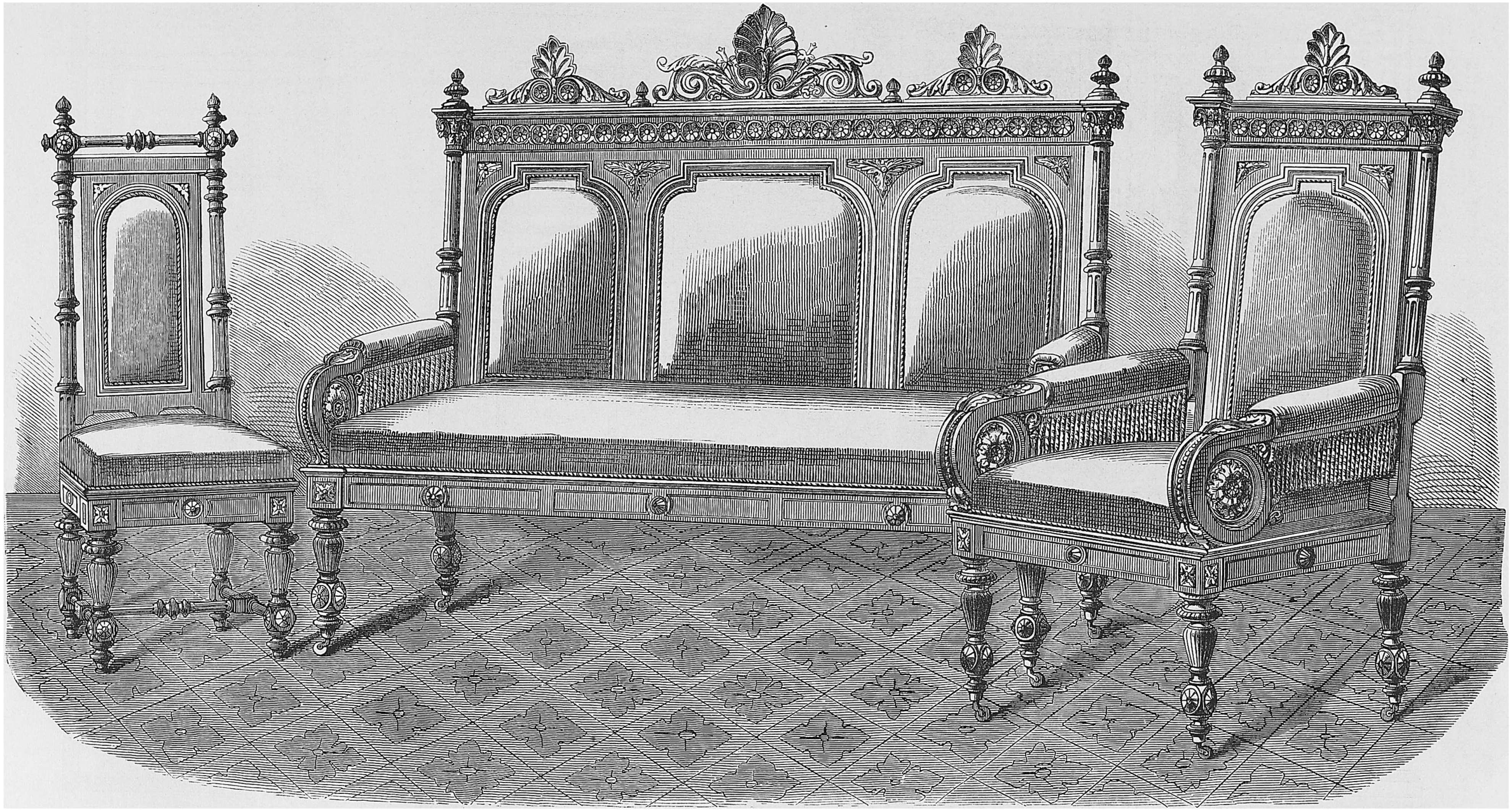
No. 9. Arab. — Decoration from Great Mosque, Damascus; design white, ground alternately red, black, blue, and gold.



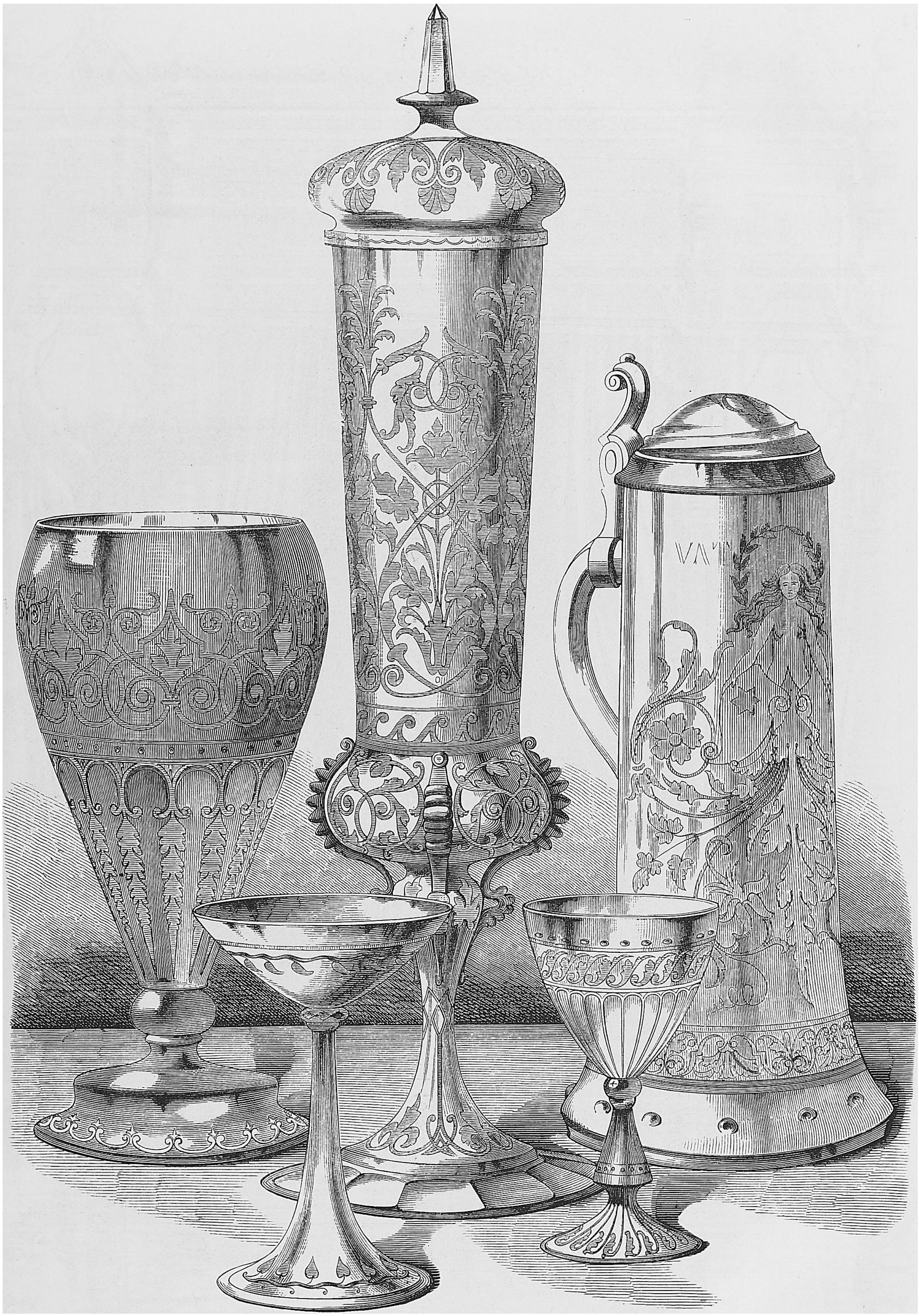
Nos. 10 and 11. Design of Balcony from Waggon-shed of Great Central Railway Depot, New-York, by Mr. Edward Schott, Archt.



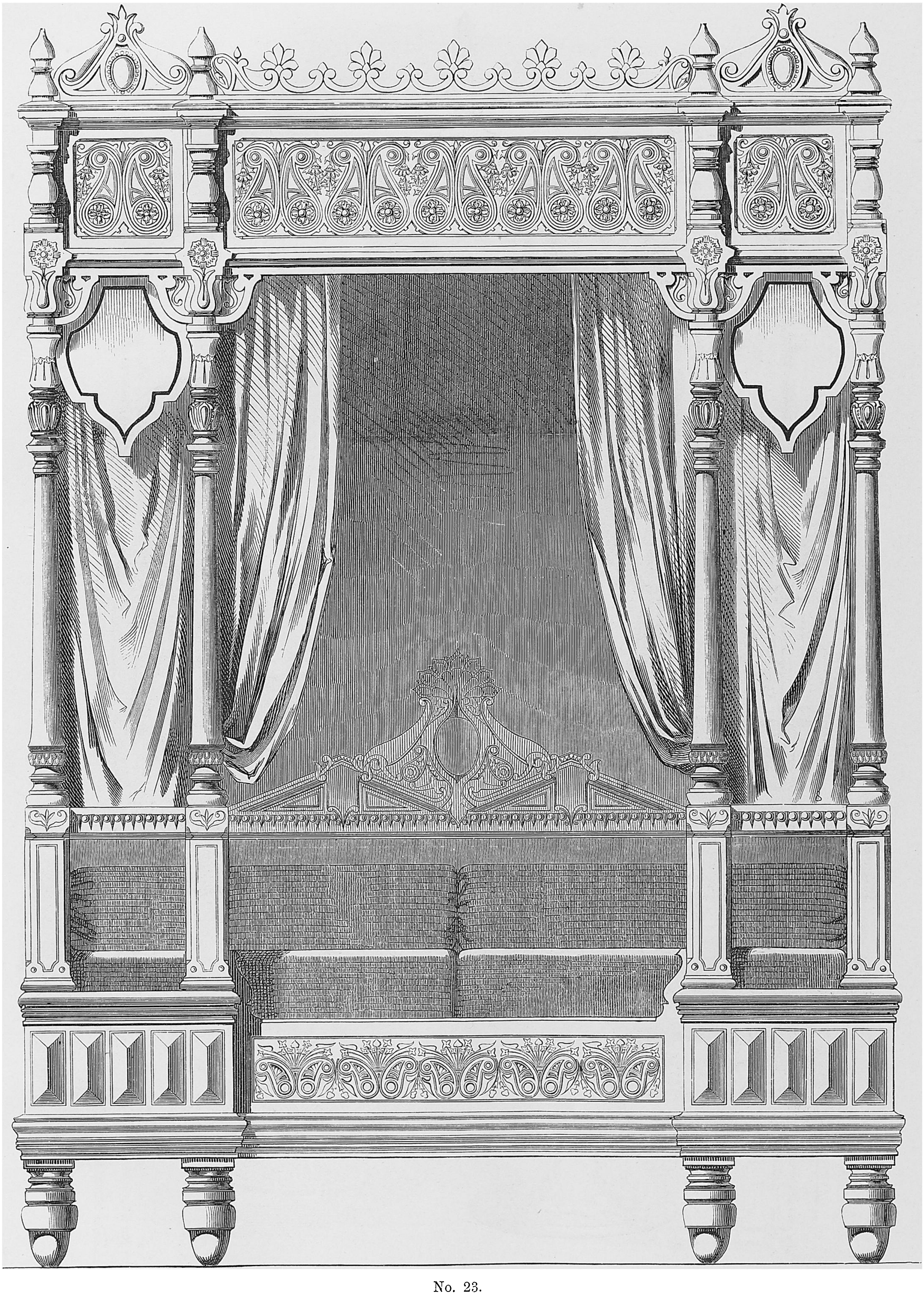
Nos. 12—14 German; end of sixteenth century. — Oak Cabinet with double folding-doors. Front and side elevations and section



Nos. 15–17. Chair, Sofa and Arm-Chair, designed and manufactured by the Renaissance Company for the Promotion of Wood Carving, Berlin. Messrs. L. and S. Lövinson R. Kemnitz.
Details No. 1 of Supplement.

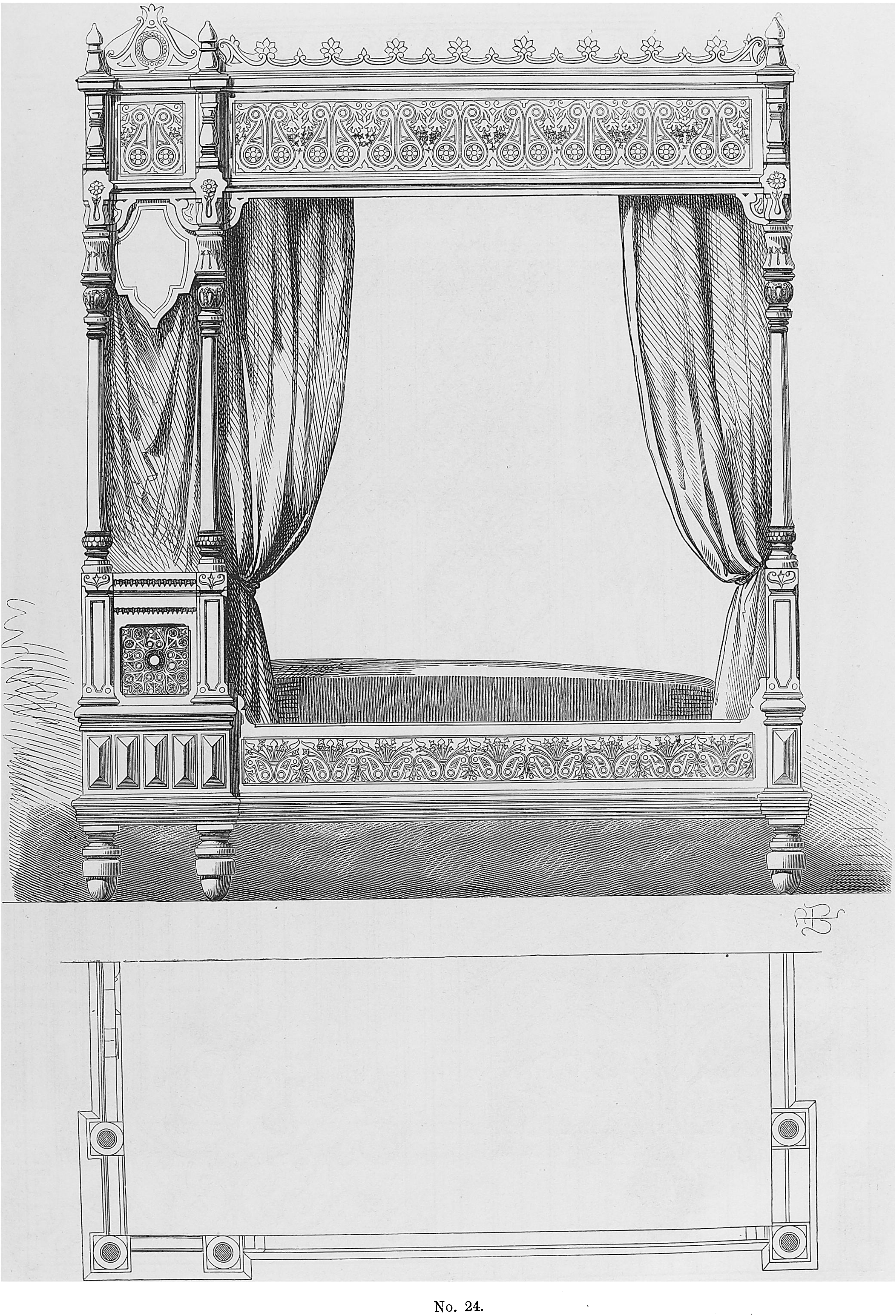


Nos. 18—22. Designs for Drinking Vessels in cut glass, with engraved or gilt ornament by Mr. Aug. Toepfer, Archt., Augsburg
Ornaments applied on foot of vessels in transparent or colored glass.

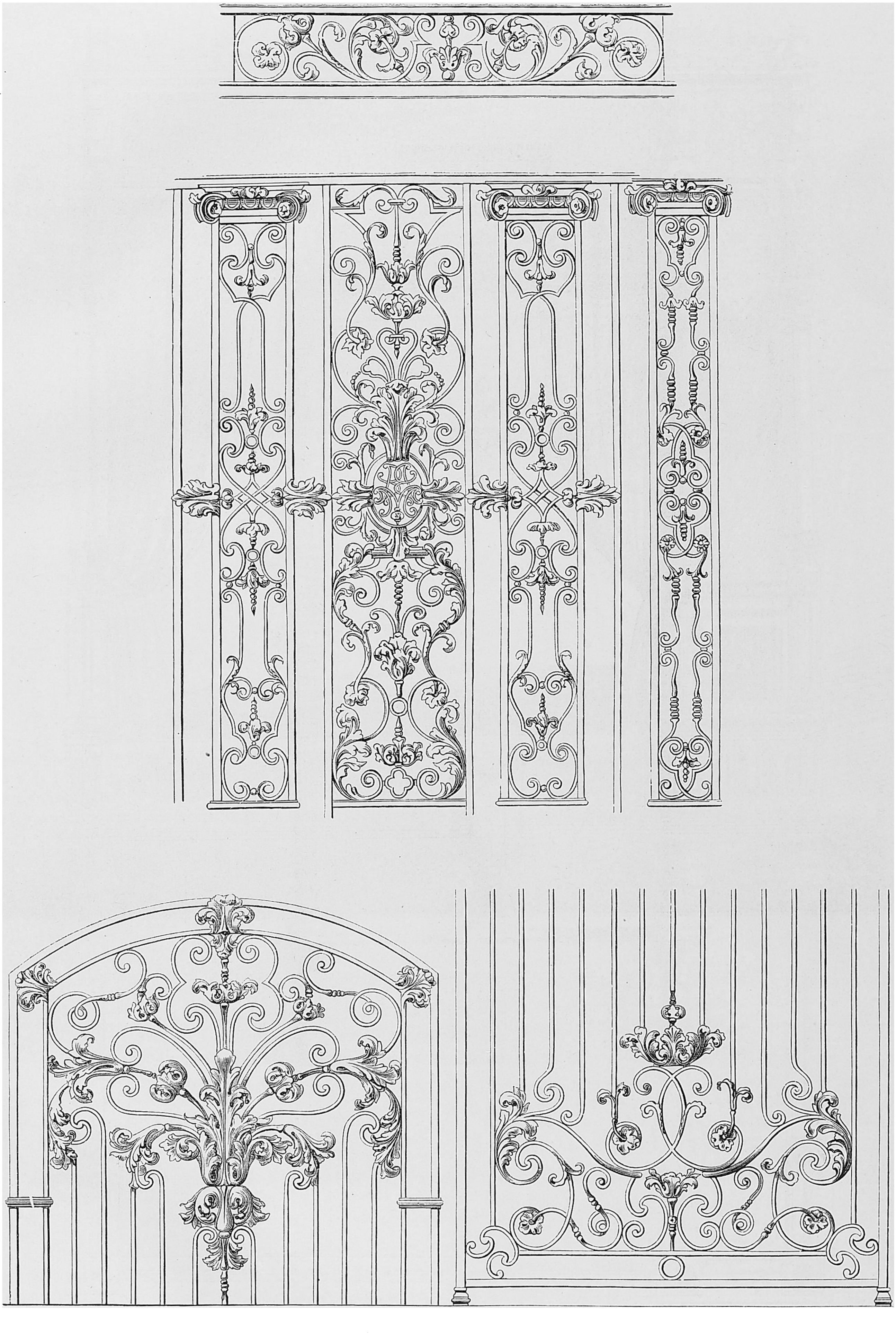


No. 23.

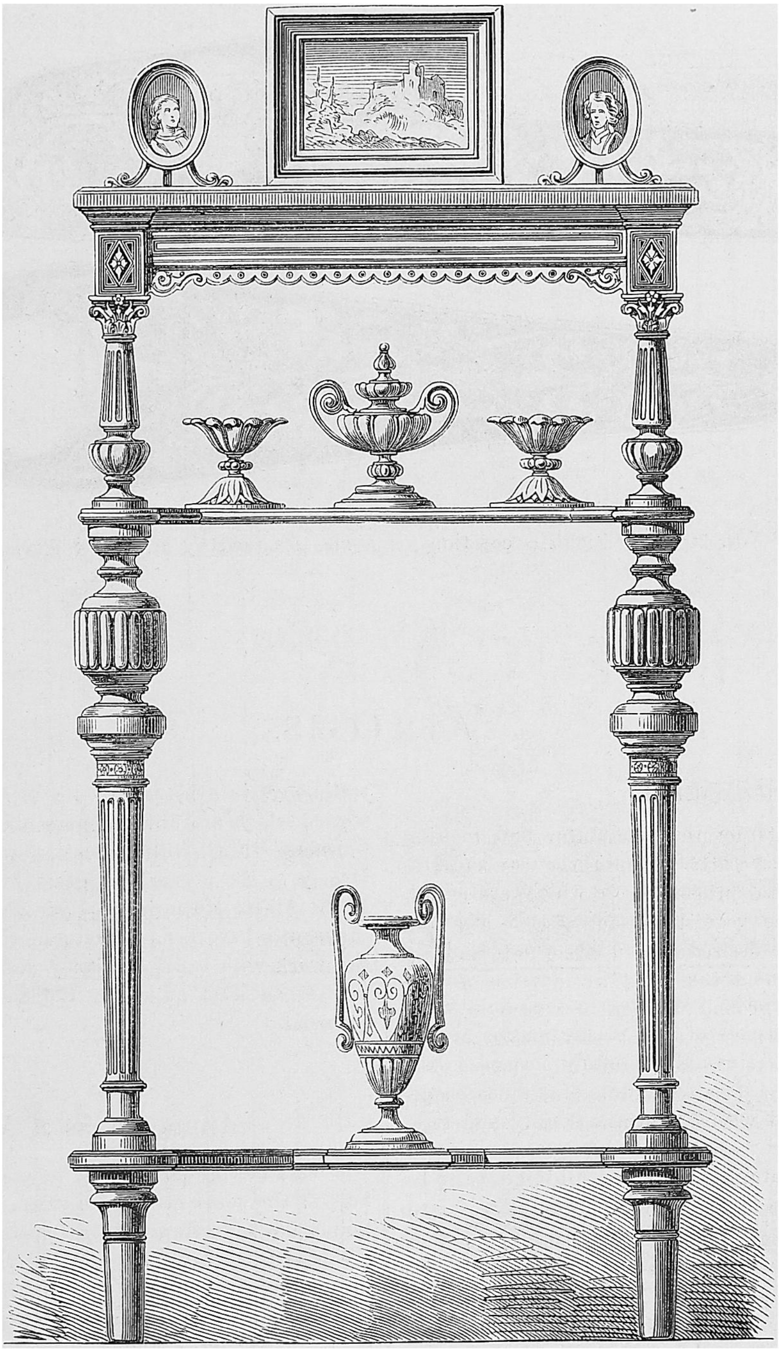
Nos. 23 and 24. Bed-stead in stained wood enriched with glazed enamelled tiles, designed by Mr. Paul Bénard, Archt. Paris. Details Nos. 4—6 of Supplement.



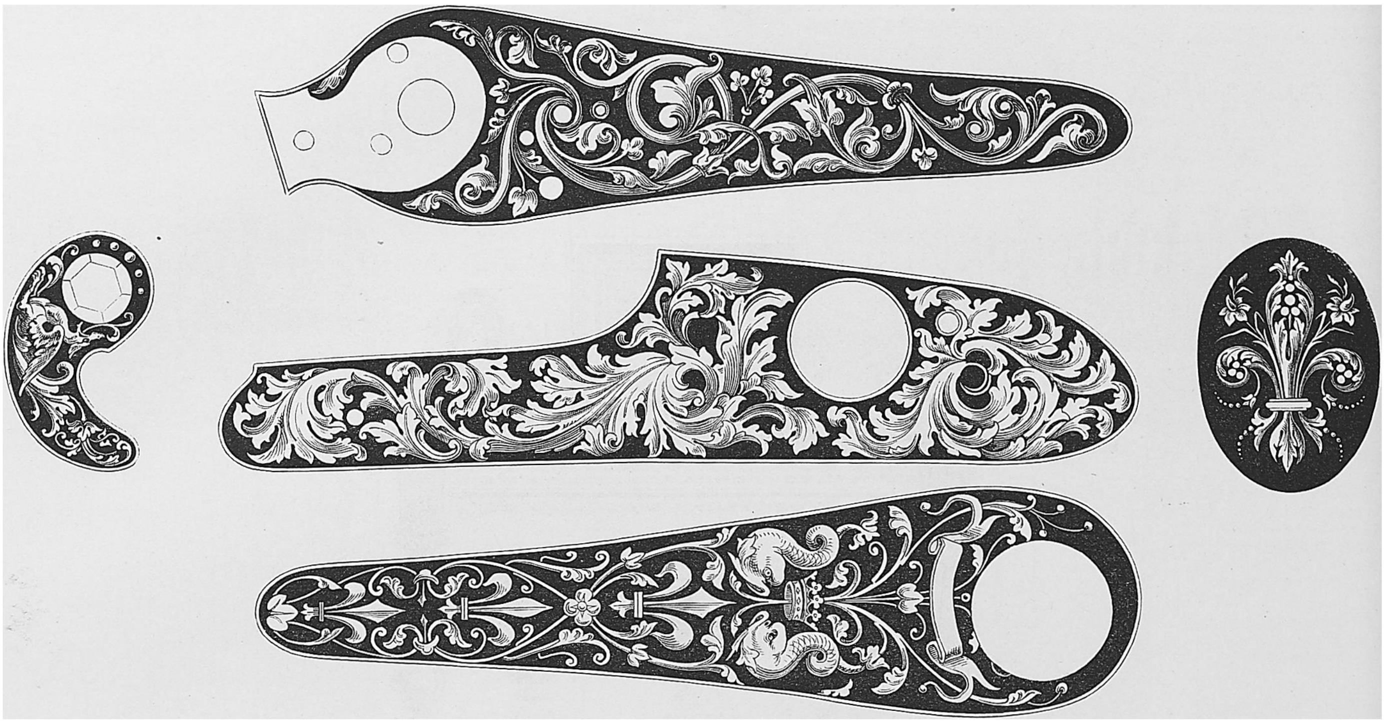
No. 24.



Nos. 25--27. Details of Wrought-iron Screen from St. Ouen Church, Rouen.



No. 28. Design of What-not by Mr. C. Berger, Archt. London, in stained pear and purple wood; cedar-wood mouldings and box-wood inlays.
Details Nos. 2 and 3 of Supplement.



Nos. 29—33. Niello Decoration for Arms, designed by M. Tissot, Paris.

VARIOUS.

Vitrified Marble.

The material itself results from the admixture, and melting together in a furnace, of equal parts of certain vitreous and silicious substances in about equal proportions, to which are added, at a suitable stage and in the requisite quantities, such coloring materials as will produce the desired effects, either as a plain body color equally diffused throughout the mass, or in veins of one or more colors with or without ground. When in a semi-fluid state, while yet hot, small or large masses of this plastic matter are cut off and pressed into iron or steel moulds carefully formed to the desired shape. In this manner decorative objects of any size, shape, or appearance can be produced with the utmost facility and rapidity of execution.

The manner in which natural materials of all kinds can be imitatively reproduced is extraordinary; ordinary marbles, veined and other, porphyry and malachite, jade, lapis lazuli, etc., thus prepared are, if anything, more real than the genuine objects themselves, and have the advantage of being in forms that could only be obtained out of the originals with great labor, waste, and cost. They can also be obtained and applied in bulk and solid masses, as for vases, paper weights, inkstands, table tops, etc., or in minuter portions, such as pateræ and tesseræ, or amorphous pieces for mosaic work in every variety, suitable for dadoes, pavements, etc. For the latter purpose, the vitrified marble paving possesses an important advantage over marble and encaustic tiles, in relation to the surface, which is rougher and more safe and pleasant to tread upon, giving good foothold and equable wear, while lending itself to every pattern, regular or the reverse. And it is not only in respect of mere surface patterns, but also of raised designs and moulded forms of every species, that this material is susceptible of adaptation. Indeed, the sharpness of definition and accuracy of detail, of which it admits, are alike noteworthy.

It cannot, moreover, be said of this invention, as of so many others, that the fairness of its promise in conception is marred or belied in practical application. On the contrary, it is sufficient to say that the most eminent architects of the day have given their testimony, in evidence of its merits, by adopting it in leading works, which are alike monuments of their skill and of national objects. Mr. G. Gilbert Scott, for example, has made use of it largely in the bosses and gems for the decorative work of the Royal Albert Memorial in Hyde Park; and nearly 2,000 of these ornaments have been introduced therein, studding and decorating the work with equal brilliancy and effect. Jesse Rust, of 15 Coleman street, E. C., London, England, is the patentee of the above material. *Scientific American.*

Ammonia as a Motive Power.

This motive power (put to use by G. Bastianelli, of Florence) acts in the same manner as steam and is as easily controlled; requires but a small amount of steam to develop its immense force, the heat necessary for producing the pressure of ten atmospheres being limited to 134° to 142° Fahrenheit, and can now, it is said, be readily adapted to any machinery worked by steam, the new engine being quite simple in construction. The saving of fuel is nearly 70 per cent. The complicated copper boiler, with its 150 tubes, is entirely dispensed with. The ammonia acts in continuous rotation, as it at once condenses and returns into the boiler, the quantity escaping being scarcely observable, and requiring only annual replacement. In sea voyages the saving of 70 per cent. of fuel is naturally of paramount importance, as, besides reducing by two-thirds the daily expenses, it also allows of more space for freight. The inventor has laboured incessantly for twelve years in endeavouring to find out a practical mode of applying this new motive power. The machine exhibited in Paris at the International Exhibition was complicated and lumbering. The actual engine is said to be simple, and its advantages and expediency therefore obvious. The inventor has taken out a patent for Italy, and will insure to his invention the same privilege all over the civilized world.

The Builder.